

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Group Art Unit: 3657

MICHAEL BERI

Examiner: Melody M. Burch

Appl. No.: 10/595,350

Filed: April 12, 2006

For: BRAKE SHOE AND BRAKE LINING WITH KEYED CONNECTION

Attorney Docket No.: CMB0101PUSA

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an Appeal Brief from the final rejection of Claims 65, 70-83, and 86-88 of the Office Action mailed on May 26, 2010 for the above-identified patent application.

I. REAL PARTY IN INTEREST

The Appellant has not assigned its rights, and is under no obligation to assign its rights. Therefore, the Applicant, Michael Beri, is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals, interferences or judicial proceedings known to the Appellant, the Appellant's legal representative, or the Assignee which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 17-26 and 41-88 are pending in this application. Claims 1-16, 27-40 have been cancelled. Claims 17-26, 41-64, 66-69, 84, and 85 have been withdrawn from further consideration as being drawn to a non-elected species or invention. Claims 65, 70-83, and 86-88 have been rejected and are the subject of this appeal.

IV. STATUS OF AMENDMENTS

No amendment has been filed after final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

A. Independent Claims 65 and 78 and respective Dependent Claims

1. Independent Claims 65 and 78

With reference to Figures 7 and 10 illustrated below, independent Claims 65 and 78 recite a brake shoe assembly comprising a brake shoe (10) and a brake plate (16). The brake shoe (10) has an outer radial surface (12) that defines a plurality of receptacles (42) and a plurality of bore holes (32). The receptacles (42) pass through the outer radial surface (12). The bore holes (32) in the outer radial surface (12) are for preassembled fasteners (30).

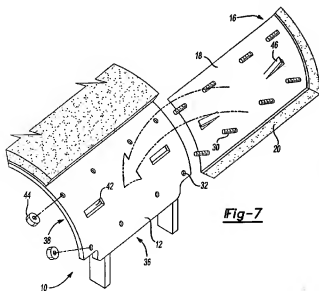
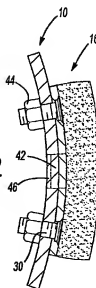
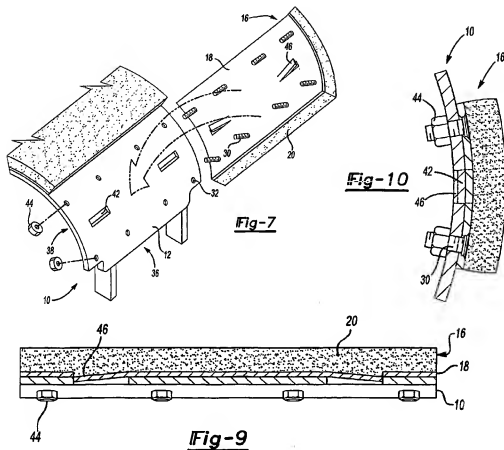


Fig-10



As illustrated below in Figures 7 and 9-10, the brake plate (16) has a cylindrical backing plate (18) and a frictional brake lining (20).



As recited in Claim 65 and shown, the cylindrical backing plate (18) includes tangs (46). The tangs (46) are partially severed from the backing plate (18) to mate with respective receptacles (42) for resisting movement of the brake plate (16) relative to the outer radial surface (12) of the brake shoe (10) without the tangs (46) passing completely through the brake shoe (10).

As recited in Claim 78 and shown, the cylindrical backing plate (18) includes projections (46). The projections (46) have edges extending away from the backing plate (18) to mate with respective receptacles (42). The projections (46) mate with respective receptacles (42) for resisting movement of the brake plate (16) relative to the outer radial surface (12) of the brake shoe (10) without the projections (46) passing beyond the receptacles (42) in the brake shoe (10).

The cylindrical backing plate (18) includes a plurality of preassembled fasteners (30). The preassembled fasteners (30) are spaced from the tangs (46) as recited in Claim 65 and the projections (46) as recited in Claim 78. The preassembled fasteners (30) extend away from the brake lining (20) and toward the brake shoe (10) to facilitate alignment of the tangs/projections (46) with the receptacles (42).

The frictional brake lining (20) is molded to the backing plate (18) to form a continuous molded layer (20). The continuous molded layer (20) covers each of the preassembled fasteners (30). Furthermore, the brake lining (20) is free of holes extending completely through the continuous molded layer (20).

As recited in Claim 65, the tangs (46) and the receptacles (42) supplement the preassembled fasteners (30) in securing the brake plate (16) to the brake shoe (10). In addition, the tangs (46) and the receptacles (42) particularly resist shear forces between the brake plate (16) and brake shoe (10).

As recited in Claim 78, the projections (46) and the receptacles (42) supplement the preassembled fasteners (30) in securing the brake plate (16) to the brake shoe (10). In addition, the projections (46) and the receptacles (42) resist shear forces between the brake plate (16) and brake shoe (10).

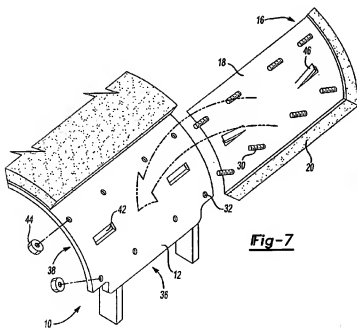


Fig-7

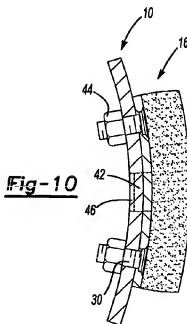


Fig-10

2. Dependent Claims 70 and 79

Dependent Claims 70 and 79 depend from and include the limitations of respective independent Claims 65 and 78. Dependent Claims 70 and 79 recite that the receptacles (42) pass radially inward through the outer radial surface (12) of the brake shoe (10).

3. Dependent Claims 71 and 80

Dependent Claims 71 and 80 depend from and include the limitations of respective independent Claims 65 and 78. Dependent Claims 71 and 80 recite that the frictional brake lining (20) is molded at least partially through each tang/projection opening in the backing plate (18) to facilitate attachment of the frictional brake lining (20) to the backing plate (18).

4. Dependent Claims 72 and 81

Dependent Claims 72 and 81 depend from and includes the limitations of respective independent Claim 65 and 78. Dependent Claims 72 and 81 recite that the frictional brake lining (20) is integrally molded into each tang/projection (46) opening in the backing plate (18) to mechanically attach the frictional brake lining (20) to the backing plate (18).

5. Dependent Claims 73 and 82

Dependent Claims 73 and 82 depend from and includes the limitations of respective independent Claim 65 and 78. Dependent Claim 73 recites that the preassembled fasteners (30) are longer than the tangs (46) to facilitate aligning the tangs (46) relative to the receptacles (42) prior to the receptacles (42) receiving the tangs (46). Similarly, dependent Claim 82 recites that the preassembled fasteners (30) are longer than the projections (46) to facilitate aligning the projections (46) relative to the receptacles (42) prior to the receptacles (42) receiving the projections (46).

6. Dependent Claims 74 and 83

Dependent Claims 74 and 83 depend from and includes the limitations of respective independent Claim 65 and 78. Dependent Claims 74 and 83 recite that the tangs/projections (46), as recited in respective Claims 65 and 78, are rectangular tangs (46) and the receptacles (42) are rectangular receptacles to receive the rectangular tangs (46).

7. Dependent Claims 75 and 86

Dependent Claims 75 and 86 depend from and include the limitations of respective independent Claim 65 and 78. Dependent Claims 75 and 86 recite that the tangs/projections (46), as recited in respective Claims 65 and 78, mate with the receptacles (42) to transfer a substantial shear force from the backing plate (18) to the brake shoe (10) when a brake drum in a vehicle applies the substantial shear force to the brake plate (16).

8. Dependent Claims 76 and 87

Dependent Claims 76 and 87 depend from and includes the limitations of respective independent Claim 65 and 78. Dependent Claims 76 and 87 recite that punching the backing plate (18) forms the tangs/projections (46), as recited in respective Claims 65 and 78, as part of the brake plate (16).

9. Dependent Claims 77 and 88

Dependent Claims 77 and 88 depend from and includes the limitations of respective independent Claim 65 and 78. Dependent Claims 77 and 88 recite that the preassembled fasteners (30) are threaded clinch stud bolts.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 65, 70-73, 75, 78-82 and 86 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 2,879,866 issued to Newell (hereinafter "*Newell*").

Dependent Claims 74 and 83 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Newell*.

Dependent Claims 76 and 87 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Newell* or, in the alternative, under 35 U.S.C. § 103(a) as obvious over *Newell*.

Dependent Claims 77 and 88 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Newell* in view of U.S. Patent 3,996,717 issued to Salleneve.

Claims 65, 70-83, and 86-88 stand rejected and are the subject of this appeal.

VII. ARGUMENT

A. **Claims 65, 70-73, 75, 78-82, and 86 Are Patentable Under 35 U.S.C. § 102(b) Over U.S. Patent No. 2,879,866 issued to Newell (hereinafter “*Newell*”)**

1. *Newell*

Newell uses reference numeral 21 to refer to a “molded brake shoe” (See Col. 4, line 28), which Applicant hereinafter refers to as a “composition brake material”.

With reference to Figures 1-2 and 6 below, *Newell* generally describes a brake shoe assemblage that includes a rivet plate 1 and a composition brake material 21. The rivet plate 1 includes a plurality of protuberances 2 each of which has an opening 9 that extends through the rivet plate 1. The assemblage comprising the rivet plate 1, the molded composition brake material 21 and a plurality of rivets 17 molded therewith allows maintenance crews in railway shops to more readily and rapidly secure the brake material 21 to the backing plate 23 (see Col. 4, line 71 – Col. 5, line 2). A rivet 17 is inserted through the opening 9 in the rivet plate 1 and through a bore 26 in a reusable backing plate 23. The shank 16 of the rivet 17 is then peened over the backing plate 23 to secure the rivet plate 1 to the backing plate 23. The backing plate 23 of the assemblage is then secured to a brake head (see Col. 1, lines 15-20).

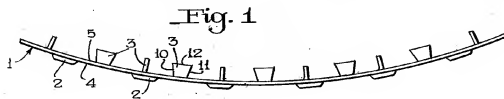
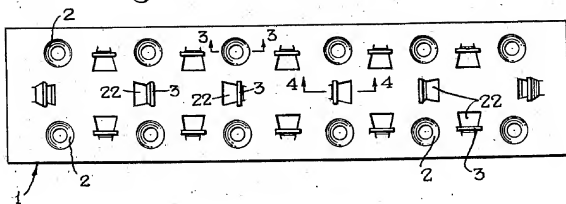
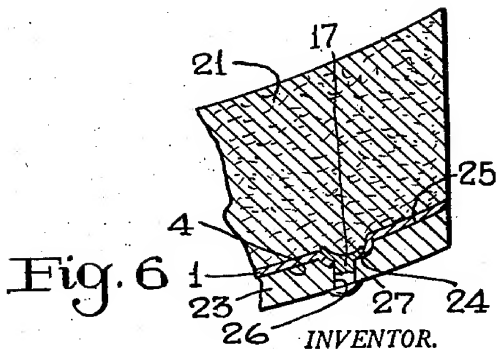


Fig. 2



According to *Newell*, when the composition brake material 21 becomes worn to such a degree as to require replacement, the rivet plate 1 is separated from the backing plate 23. The rivet plate 1 is separated from the backing plate 23 by shearing the rivets 17 and throwing the rivet plate 1 away. Next a new, prefabricated molded assemblage is secured to the reusable backing plate 23 by peening over the projecting ends of the rivets 17 (see Col. 4, lines 63-70). Finally, the backing plate 23 is secured to a brake head (see Col. 1, lines 15-20).



2. **Claims 65 and 78 Compared to *Newell***

The Examiner erroneously states the brake shoe (10) as recited in independent Claims 65 and 78 is the same as the backing plate 23 of *Newell*. However, the brake shoe (10) does not correspond to the backing plate 23 of *Newell* in that the brake shoe (10) of Claims 65 and 78 is an entirely different interface surface. Unlike the backing plate 23 of *Newell*, the brake shoe (10) is not secured to a brake head. *Newell* has protuberances 2 of a rivet plate 1 that are received in the backing plate 23. The backing plate 23 does not have tangs or protrusions that resist shear forces between the backing plate 23 and the brake head. In Claims 65 and 78, the tangs (46) (or protrusions) on the backing plate (18) are received in receptacles (42) formed in the brake shoe (10). In the claimed invention, the backing plate (18) is replaced on the brake shoe (10). In *Newell*, the backing plate 23 is replaced on the brake head and there are no tangs or projections at that interface. Claims 65 and 78 are not anticipated.

In Claims 65 and 78, the tangs (46) (or protrusions) on the backing plate (18) are significant because shear forces between the surface of a backing plate and a brake shoe must be withstood by the fasteners that secure the brake plate that includes a backing plate to the brake shoe. If a brake plate or part of the friction lining material becomes detached from the brake shoe in an emergency, the brake assembly could lock-up or be otherwise seriously compromised. Furthermore, the paramount consideration for brake design is safety. Worn or damaged brakes can cause reduced braking performance that may result in longer stopping distances. If a brake lining becomes dislodged in whole or in part, the brake for a wheel can jam or lock-up and could result in a truck jack knifing.

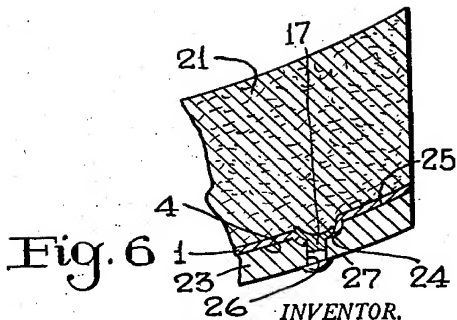
As noted in the background section, commercial and industrial vehicle brake linings that are riveted to steel brake shoes are generally rigid, non-asbestos friction material. If the outer diameter of the brake shoe surface that is to be retrofit with new brake linings is not completely flat or within original design radius tolerances, the lining after securing to the shoe may crack or break off of the brake shoe. This may create problems relating to braking performance, durability, and safety.

The brake plate (16) as recited in independent Claims 65 and 78 has a structure corresponding to the rivet plate 1 of *Newell*, for bonding the friction brake lining (20) to the backing plate (18). The Examiner's misplaced reliance upon the protuberances 2 of *Newell* are at the interface between the rivet plate 1 and backing plate 23 that does not exist in the claimed structure. Instead, the friction brake lining (20) of independent Claims 65 and 78 is molded directly to the backing plate (18).

The brake shoe assembly as recited in independent Claims 65 and 78 particularly resists shear forces between the brake plate (16) and brake shoe (10). In contrast to the brake shoe assembly as recited in Claims 65 and 78, *Newell* deals with transmitting shear forces from the rivet plate 1 to the backing plate 23 (Col. 4, lines 42-60). *Newell* fails to disclose structure that resists shear forces between the backing plate 23 and a brake head.

Unlike *Newell*, the brake shoe assembly as recited in Claims 65 and 78 includes tangs/projections (46) and a plurality of preassembled fasteners (30) (illustrated in Figures 7-10). *Newell* does not describe a brake shoe assemblage that includes each of these two different sets of elements. While *Newell* describes protuberances 2 each of which has an opening 9 to receive a rivet 17, *Newell* gives no direction as to which of many possible choices is likely to be successful beyond using the rivet 17 of *Newell* to secure the rivet plate 1 to the backing plate 23.

The tangs (46) as recited in Claim 65 are partially severed from the backing plate (18) and the projections (46) as recited in Claim 78 have edges extending away from the backing plate (18) to mate with respective receptacles (42). The protuberances 2 of *Newell* are actually countersunk areas of the rivet plate 1 that function to receive the head of the rivet 17 in the rivet plate 1 unlike the tangs/projections (46) in Claims 65 and 78, which are formed from the backing plate (18). *Newell* gives no indication that the protuberances 2 extend from the backing plate (18). *Newell* fails to give any guidance as to how the protuberances 2 of the rivet plate 1 secure the brake plate to the brake shoe (or brake plate) "particularly resist shear forces **between the brake plate (16) and brake shoe (10)**" (emphasis added) as recited in Claims 65 and 78. The tangs/projections (46) as recited in Claims 65 and 78 are not anticipated.



The frictional brake lining (20) as specifically claimed in Claims 71 and 80 is molded at least partially through each tang/projection opening in the backing plate (18) to facilitate attachment of the frictional brake lining (20) to the backing plate (18). Instead, *Newell* discloses that “composition brake material will not flow through the opening 9” (Col. 4, lines 6-7). The frictional brake lining (20) claimed in Claims 72 and 81 is even more distinct in that it is integrally molded into each tang/projection (46) opening in the backing plate (18) to mechanically attach the frictional brake lining (20) to the backing plate (18). *Newell* is contrary in its teaching that the “composition brake material will not flow through the opening 9” (Col. 4, lines 6-7). Applicant respectfully requests withdrawal of the rejections to Claims 71-72 and 80-81 under 35 U.S.C. 35 U.S.C. § 102(b).

4. Claims 75-86 Compared to *Newell*

The brake shoe assembly as recited in Claims 75 and 86 addresses transferring shear forces from the backing plate (18) to the brake shoe (10). The tangs/projections (46) as claimed in respective Claims 75 and 86 mate with the receptacles (42) in the brake shoe (10) to transfer a substantial shear force from the backing plate (18) to the brake shoe (10) when a brake drum in a vehicle applies the substantial shear force to the brake plate (16). *Newell* deals with transmitting shear forces from the composition brake material 21 and rivet plate 1 to the backing plate 23. In *Newell* “any force acting...to tend to shear the rivets 17 will actually be transmitted from the brake shoe 21 to the backing plate 23” (Col. 4, lines 42-60).

B. Claims 74 and 83 Are Patentable Under 35 U.S.C. § 103(a) Over U.S. Patent No. 2,879,866 issued to *Newell* (hereinafter “*Newell*”)

Claims 74 and 83 recite that the tangs/projections (46) are rectangular tangs (46) and the receptacles (42) are rectangular receptacles that receive the rectangular tangs (46). *Newell* discloses circular rivet head countersunk portions (protrusions 2) in a rivet plate 1. The protrusions 2 of *Newell* are at the wrong interface and are the wrong shape to resist shear forces between the brake plate and brake shoe.

The configuration of the tangs/projections (46) is not a matter of choice which a person of ordinary skill in the art would have found obvious based upon *Newell's* circular ramp surfaces. The claimed structure of the rectangular tangs/projections (46) and respective receptacles (42) resists movement of the brake plate (16) relative to the brake shoe (10). *Newell's* circular ramp surfaces of the rivet head countersunk protrusions is inappropriate.

C. Claims 76 and 87 Are Patentable Under 35 U.S.C. § 102(b) and 103(a) Over U.S. Patent No. 2,879,866 issued to Newell (hereinafter “*Newell*”)

Claims 76 and 87 recite that the tangs/projections (46) are punched as part of the brake plate (16). In direct contrast to *Newell*, the rivet 17 of *Newell* is formed from neither the rivet plate 1 nor the reusable backing plate 23 –the rivet 17 is a separate part –unlike the tangs/projections (46) as recited in Claims 76 and 87, which are formed from the backing plate (18). Regardless of how the tangs/projections (46) are formed, the rivet 17 of *Newell* is not formed from the rivet plate 1 or the backing plate 23.

D. Claims 77 and 88 Are Patentable Under 35 U.S.C. § 103(a) Over U.S. Patent No. 2,879,866 issued to Newell (hereinafter “*Newell*”) in view of U.S. Patent 3,996,717 issued to Sallenave (hereinafter “*Sallenave*”).

Claims 77 and 88 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Newell* in view of *Sallenave*. Examiner erroneously states that *Sallenave* teaches threaded clinch stud bolts. However, the stud bolts of *Sallenave* are not described as being “threaded clinch stud bolts.” *Sallenave* discloses only building wall surfaces as applied to buildings and erected structures. *Sallenave* does not deal with brakes shoes, brakes, or anything related to braking systems. One of ordinary skill in the art at the time of the invention was made would not have reasonably looked to *Sallenave* to consider as a basis for the claimed concept of including threaded clinch stud bolts as part of a brake plate.

The fee of \$270.00 as applicable under the provisions of 37 C.F.R. § 41.20(b)(2) is enclosed. Please charge any additional fee or credit any overpayment in connection with this filing to our Deposit Account No. 02-3978.

Respectfully submitted,

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Enclosure – Appendices

VIII. CLAIMS APPENDIX

65. A brake shoe assembly comprising:

a brake shoe having an outer radial surface, a plurality of receptacles passing through the outer radial surface, and a plurality of bore holes in the outer radial surface for preassembled fasteners; and

a brake plate having a cylindrical backing plate and a frictional brake lining, wherein the cylindrical backing plate includes tangs that are partially severed from the backing plate to mate with respective receptacles for resisting movement of the brake plate relative to the outer radial surface of the brake shoe without the tangs passing completely through the brake shoe, and a plurality of preassembled fasteners spaced from the tangs and extending away from the brake lining and toward the brake shoe to facilitate alignment of the tangs with the receptacles, and wherein the frictional brake lining is molded to the backing plate to form a continuous molded layer that covers each of the preassembled fasteners, the brake lining being free of holes extending completely through the continuous molded layer;

wherein the tangs and the receptacles supplement the preassembled fasteners in securing the brake plate to the brake shoe and particularly resist shear forces between the brake plate and brake shoe.

70. The brake shoe assembly of claim 65 wherein the receptacles pass radially inward through the outer radial surface of the brake shoe.

71. The brake shoe assembly of claim 65 wherein the frictional brake lining is molded at least partially through each tang opening in the backing plate to facilitate attachment of the frictional brake lining to the backing plate.

72. The brake shoe assembly of claim 65 wherein the frictional brake lining is integrally molded into each tang opening in the backing plate to mechanically attach the frictional brake lining to the backing plate.

73. The brake shoe assembly of claim 65 wherein the preassembled fasteners are longer than the tangs to facilitate aligning the tangs relative to the receptacles prior to the receptacles receiving the tangs.

74. The brake shoe assembly of claim 65 wherein the tangs are rectangular tangs and the receptacles are rectangular receptacles to receive the rectangular tangs.

75. The brake shoe assembly of claim 65 wherein the tangs mate with the receptacles to transfer a substantial shear force from the backing plate to the brake shoe when a brake drum in a vehicle applies the substantial shear force to the brake plate.

76. The brake shoe assembly of claim 65 wherein punching the backing plate forms the tangs as part of the brake plate.

77. The brake shoe assembly of claim 65 wherein the preassembled fasteners are threaded clinch stud bolts.

78. A brake shoe assembly comprising:

a brake shoe having an outer radial surface, a plurality of receptacles passing through the outer radial surface, and a plurality of bore holes in the outer radial surface for preassembled fasteners; and

a brake plate having a cylindrical backing plate and a frictional brake lining, wherein the cylindrical backing plate includes projections having edges extending away from the backing plate to mate with respective receptacles for resisting movement of the brake plate relative to the outer radial surface of the brake shoe without the projections passing beyond the receptacles in the brake shoe, and a plurality of preassembled fasteners spaced from the projections and extending away from the brake lining and toward the brake shoe to facilitate alignment of the projections with the receptacles, and wherein the frictional brake lining is molded to the backing plate to form a continuous molded layer that covers each of the preassembled fasteners, the brake lining being free of holes extending completely through the continuous molded layer;

wherein the projections and the receptacles supplement the preassembled fasteners in securing the brake plate to the brake shoe and particularly resist shear forces between the brake plate and brake shoe.

79. The brake shoe assembly of claim 78 wherein the receptacles pass radially inward through the outer radial surface of the brake shoe.

80. The brake shoe assembly of claim 78 wherein the frictional brake lining is molded at least partially through each projection opening in the backing plate to facilitate attachment of the frictional brake lining to the backing plate.

81. The brake shoe assembly of claim 78 wherein the frictional brake lining is integrally molded into each projection opening in the backing plate to mechanically attach the frictional brake lining to the backing plate.

82. The brake shoe assembly of claim 78 wherein the preassembled fasteners are longer than the projections to facilitate aligning the projections relative to the receptacles prior to the receptacles receiving the projections.

83. The brake shoe assembly of claim 78 wherein the projections are rectangular tangs and the receptacles are rectangular receptacles to receive the rectangular tangs.

86. The brake shoe assembly of claim 78 wherein the projections mate with the receptacles to transfer a substantial shear force from the backing plate to the brake shoe when a brake drum in a vehicle applies the substantial shear force to the brake plate.

87. The brake shoe assembly of claim 78 wherein punching the backing plate forms the projections as part of the brake plate.

88. The brake shoe assembly of claim 78 wherein the preassembled fasteners are threaded clinch stud bolts.

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDINGS APPENDIX

None